FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

November 18 to November 24, 2012 (Week 47)

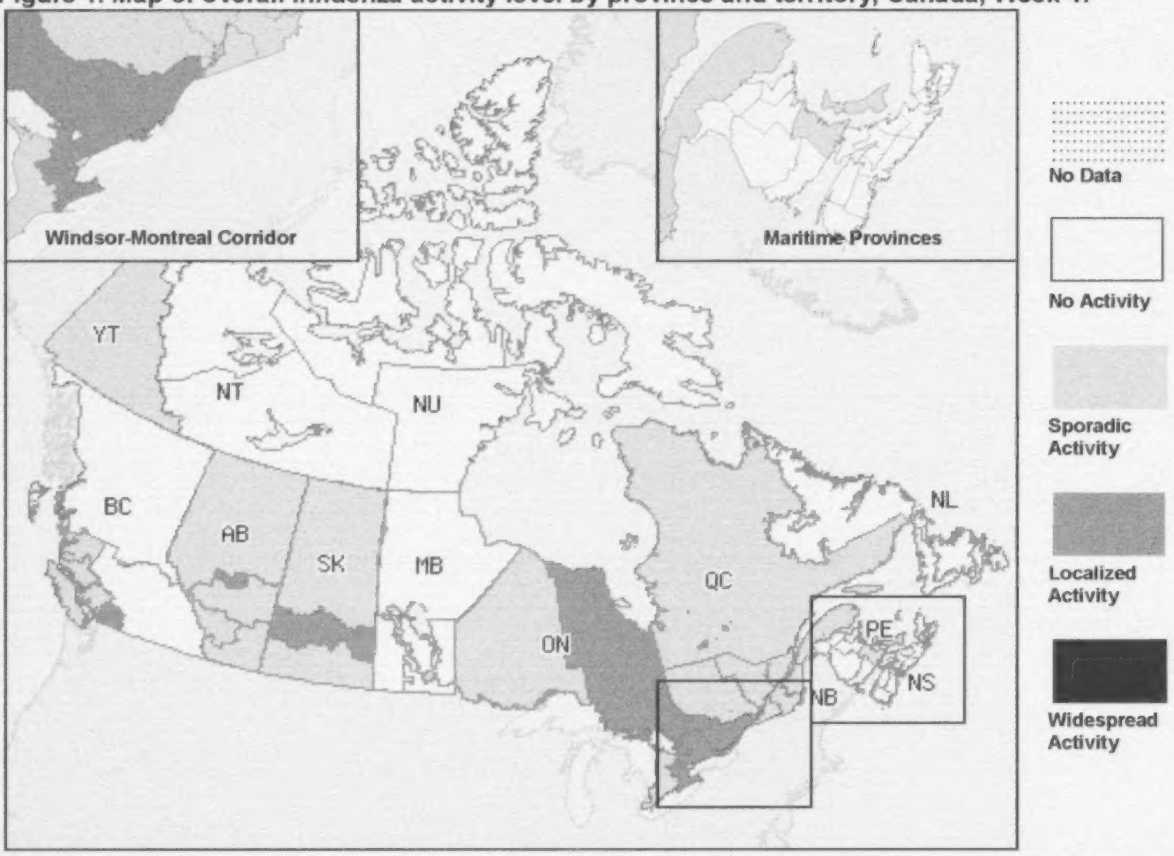
Overall Influenza Summary

- The influenza season has started in Canada with increases in all influenza indicators observed this week.
- More regions reported sporadic or localized activity compared to the previous week.
- A total of 278 laboratory detections of influenza were reported, of which 97.8% were for influenza A viruses, predominantly A(H3N2).
- Eight influenza outbreaks were reported: one in a hospital, five in long-term care facilities and two in other settings.
- Seven paediatric influenza-associated hospitalizations were reported through the IMPACT network, and 27 cases in adults ≥20 years of age were reported through Aggregate surveillance.
- The ILI consultation rate increased compared to the previous week but is within the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

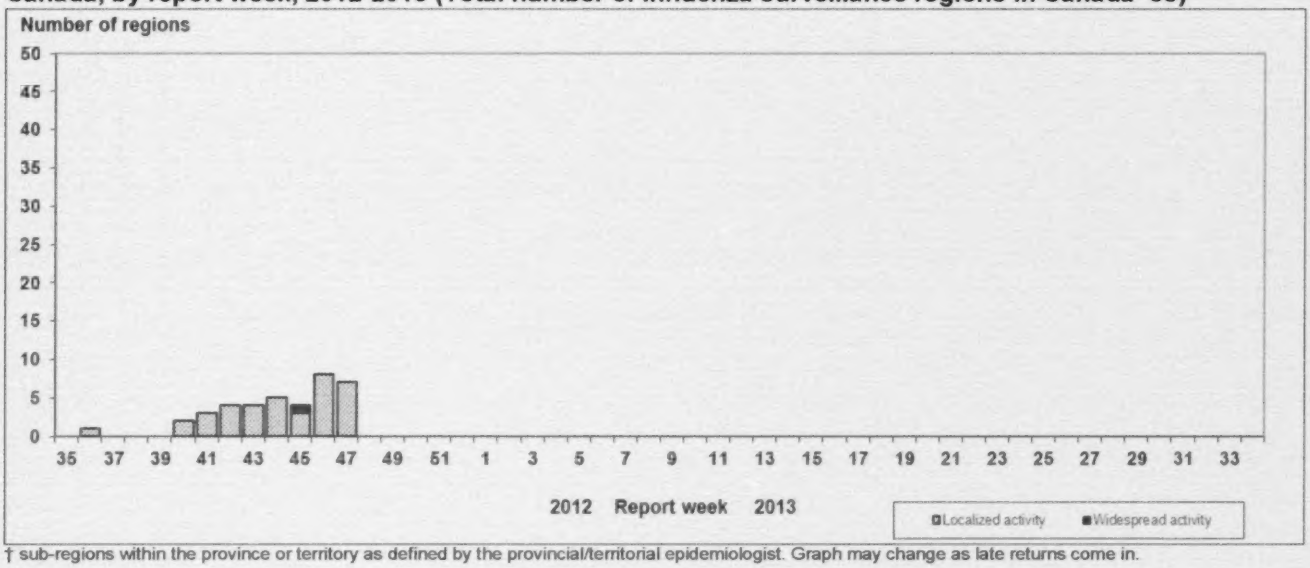
In week 47, seven regions [in BC(1), AB(1), SK(1) and ON(4)] reported localized activity, 21 regions [in BC(2), AB(4), SK(2), MB(1), ON(3), QC(6), NB(1), PE(1) and YK(1)] reported sporadic activity and the rest reported no activity (Figures 1 and 2). Eight new influenza outbreaks were reported in week 47: one in a hospital [in ON], five in long-term care facilities [in BC(1), AB(1), SK(1) and ON(2)] and two in other settings [in ON] (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 47



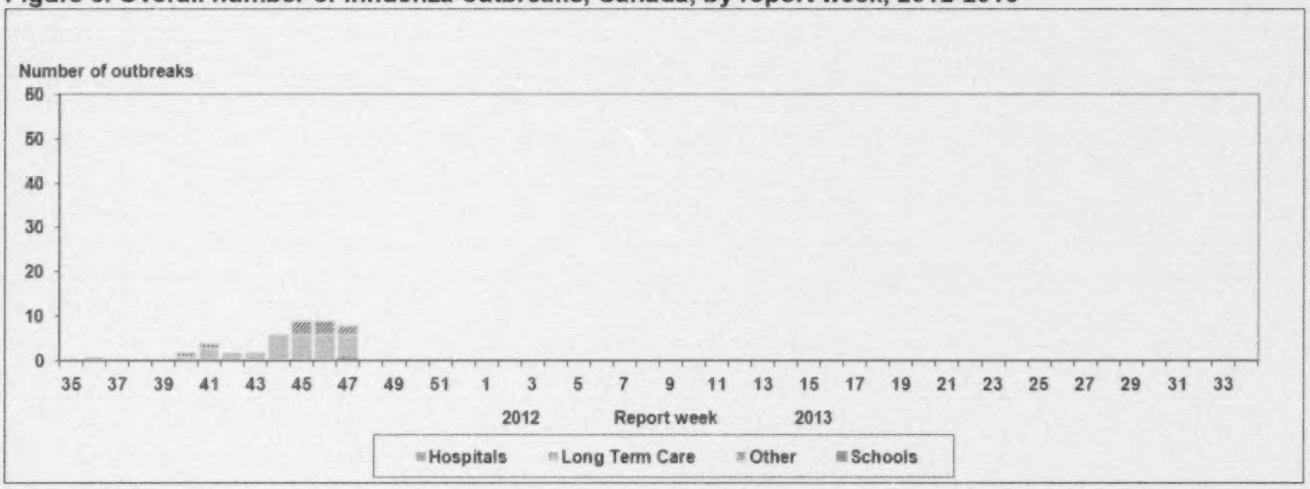
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from the previous week, from 5.9% in week 46 to 9.6% in week 47 (Figure 4). Among the influenza viruses detected this week (n=278), 97.8% were positive for influenza A viruses [of which 55.9% were A(H3), 1.1% were A(H1N1)pdm09, and 43.0% were A unsubtyped]; 2.2% of viruses detected were influenza B viruses (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 94.6% influenza A [61.8% A(H3), 3.4% A(H1N1)pdm09 and 34.8% A(unsubtyped)] and 5.4% influenza B (Table 1).

Detailed information on age and type/subtype was received for 625 cases to date this season (Table 2).The proportions of cases by age group were as follows: 13.3% were < 5 years; 12.8% were between 5-19 years; 16.8% were between 20-44 years; 16.8% were between 45-64 years of age; 40.3% were ≥ 65 years.

The percentage positive for rhinovirus detections continued to decline in week 47 to 15.3%, but remains the highest compared to the other respiratory viruses. The percentage positive for RSV (5.7%) increased compared to the previous week, while parainfluenza (4.4%) and coronavirus (3.1%) detections declined slightly. Other percentages of positive tests remained low: adenovirus 2.1%; hMPV 0.9% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	November 18 to November 24, 2012						Cumulative (August 26, 2012 to November 24, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	30	0	24	0	6	0	53	0	44	0	9	6
AB	39	0	24	0	15	1	165	0	129	11	25	9
SK	13	0	11	0	2	2	24	0	18	0	6	3
MB	3	0	3	0	0	1	12	0	11	0	1	2
ON	109	0	89	3	17	0	260	0	203	11	46	8
QC	77	0	0	0	77	2	151	0	6	0	145	10
NB	0	0	0	0	0	0	2	0	0	1	1	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	1	0	1	0	0	0	2	0	2	0	0	0
NL	0	0	0	0	0	0	3	0	2	0	1	0
Canada	**272**	**0**	**152**	**3**	**117**	**6**	**672**	**0**	**415**	**23**	**234**	**38**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (November 18 to November 24, 2012)					Cumulative (Aug. 26, 2012 to November 24, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	14	0	5	9	0	77	4	47	26	6
5-19	22	0	12	10	1	74	0	55	19	6
20-44	30	1	15	14	1	101	7	67	27	4
45-64	21	0	7	14	1	91	5	55	31	14
65+	73	0	33	40	0	249	4	150	95	3
Unknown	1	0	1	0	0	2	0	2	0	0
Total	161	1	73	87	3	594	20	376	198	33

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

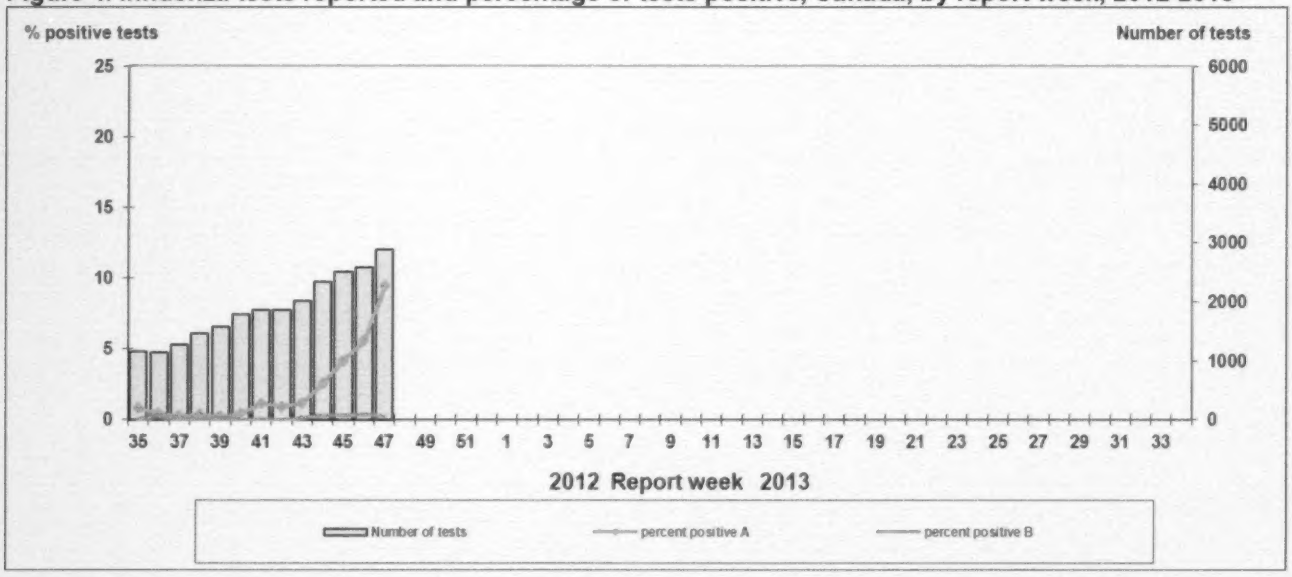
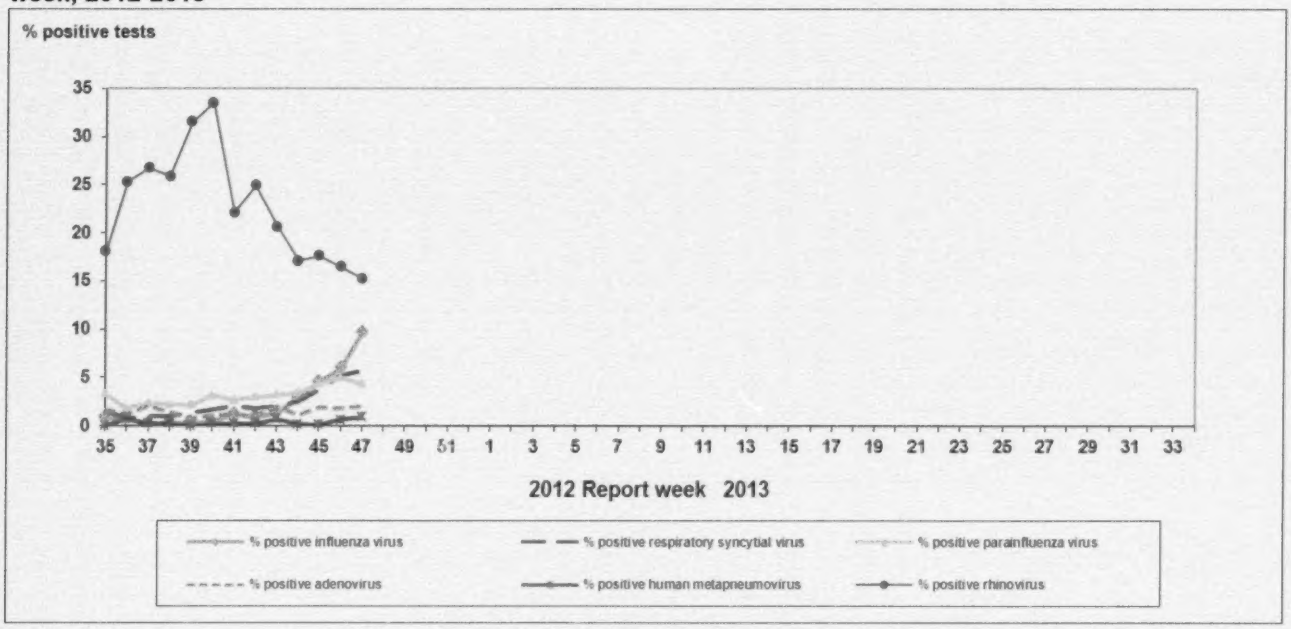


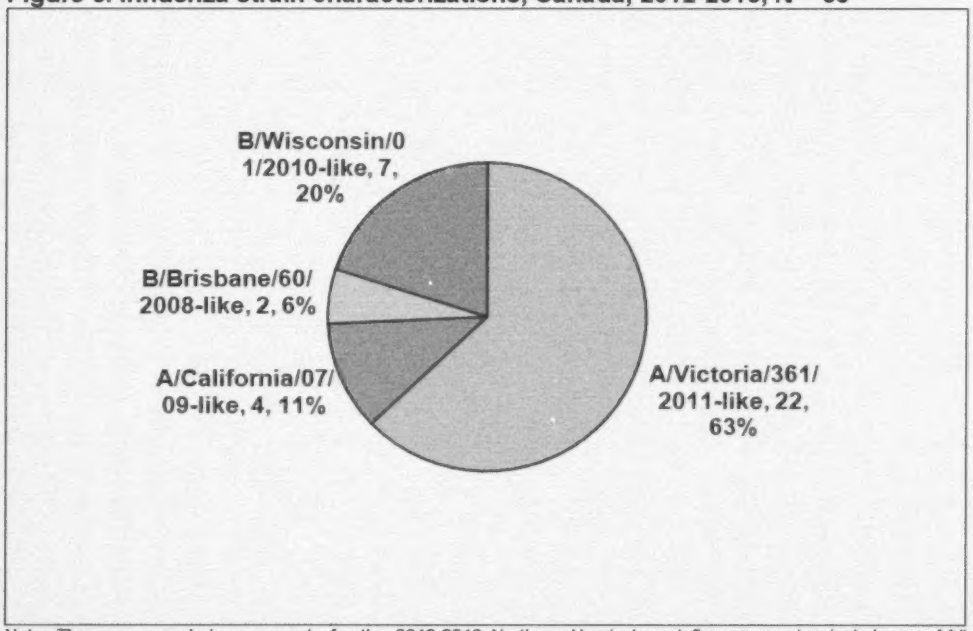
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 35 influenza viruses [22 A(H3N2), 4 A(H1N1)pdm09 , and 9 influenza B]. The 22 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 4 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 7 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 2 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 35



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

Since the beginning of the season, NML has tested 31 influenza viruses [19 A(H3N2), 4 A(H1N1)pdm09 and 8 B] for resistance to oseltamivir and has tested 30 influenza viruses [18 A(H3N2), 4 A(H1N1)pdm09 and 8 B] for resistance to zanamivir and it was found that all were sensitive to oseltamivir and zanamivir. A total of 49 influenza A viruses [46 A(H3N2) and 3 A(H1N1)pdm09] were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

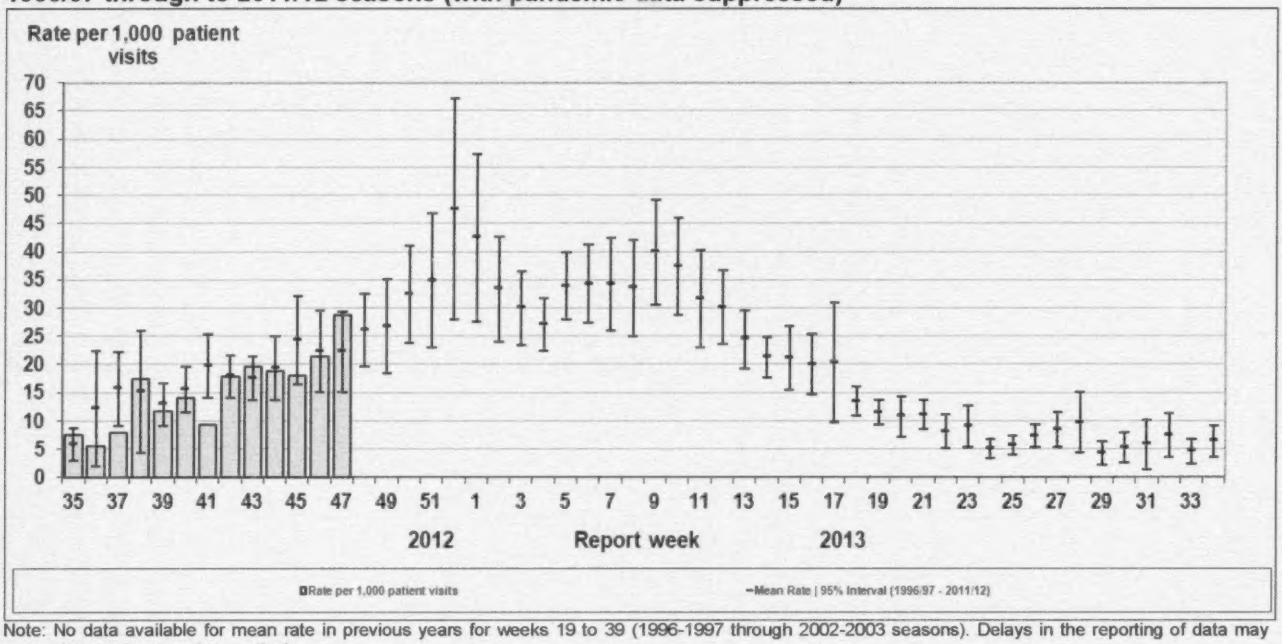
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	19	0	18	0	46	46 (100%)
A (H1N1)	4	0	4	0	3	3
B	8	0	8	0	NA*	NA*
TOTAL	31	0	30	0	49	49 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 47 increased from the previous week from 21.3 to 28.6 ILI consultations per 1,000 patient visits which is within the expected level for this time of year (Figure 7). The highest consultation rates were observed in children 5-19 years of age (69.1/1,000) followed by children <5 years of age (20.3/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

Following a gradual increase since early October 2012 (week 40), the Canadian antiviral prescription rate jumped from a rate of 17.3 antiviral prescriptions per 100,000 new prescriptions dispensed in week 46 to 47.7/100,000 in week 47, due in large part to increases in antiviral prescriptions reported from BC, AB, ON and QC. Based on data collected since April 2011, the current rate of antiviral prescriptions of 47.7/100,000 is higher than expected based on the current percentage of positive laboratory tests for influenza, and closer to the rate observed when the percentage of influenza detections was between 10%-15%. In week 47, the antiviral prescription rates increased for all age groups; however the highest rate, and highest rate of increase, was observed in seniors >75 years of age (120.6/100,000).

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 47, seven new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Five cases were reported with unsubtyped influenza A [from ON(1) and QC(4)], one with A(H3N2) [from AB], and one with influenza B [from SK]. One case in QC was admitted to the ICU. Two of the seven cases were under 6 months of age, two were between 6-23 months, two age 2-4 years, and one age 5-9 years.

Since the start of the 2012-13 season, a total of 20 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 18 (90%) with influenza A [of which 6 (33%) were A(H3N2) and 12 (67%) were unsubtyped], and 2 (10%) with influenza B. The distribution of cases by age group is as follows: 4 (20%) <6 months of age, 3 (15%) age 6-23 months, 6 (30%) age 2-4 years, 3 (15%) age 5-9 years, and 4 (20%) age 10-16 years. Three of the 20 cases (15%) were admitted to the ICU.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 47, 36 laboratory confirmed influenza A-associated hospitalizations were reported [AB(13), MB(2), ON(20), PE(1)]. The age group most affected was ≥ 65 years of age (41.7%, 15/36). Of these 36 influenza hospitalizations, 35 were influenza A [3 A(H1N1)pdm09, 18 A(H3), 14 A(unsubtyped)] and one was influenza B. Of the 16 cases with available data, one case of influenza A(H3) in a person aged between 20-44years was admitted to the Intensive Care Unit (ICU). There were 3 deaths, all in influenza A cases in persons ≥ 65 years of age. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. No report was received from YT this week.

To date this season, 103 influenza-associated hospitalizations have been reported from five provinces (AB, MB, NL, ON and PEI). The majority of cases have been influenza A (96.1%, 99/103). More than half of the cases (58.2%, 60/103) were ≥ 65 years of age. Of the 71 influenza A hospitalizations for which subtype was available, 12.7% (9/71) were due to influenza A(H1N1)pdm09, and 87.3% (62/71) were due to A(H3). Among the 52 cases with available data, there have been 8 hospitalisations for which admission to ICU was required, half of which were persons ≥ 65 years of age. To date this season, four deaths have been reported: all in influenza A cases (3 H3; 1 unsubtyped) aged 65 years or older. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since November 23, 2012.
World Health Organization influenza update

United States: During week 47, influenza activity increased in the United States. Four states reported widespread influenza activity, seven states reported regional influenza activity, and 19 states reported local activity. Several states around the Gulf of Mexico report high ILI activity and the overall percentage of outpatient visits for ILI is at the national baseline at 2.2%. The proportion of tests positive for influenza viruses increased in week 47 (15.2%) compared to the previous week. Of the positive influenza detections reported during week 47, 70.3% were positive for influenza A

viruses. Of the 200 influenza A viruses for which subtype information was available, 99.5% were A(H3) and 0.5% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 140 influenza viruses: 90 A/Victoria/361/2011-like; 2 A/California/7/2009-like; 34 B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 14 influenza B belonging to the B/Victoria lineage.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 47, influenza activity in Europe remained low with sporadic detection of all three sub/types, primarily in the north-west part of the region. However, more countries are reporting increasing rates of influenza-like illness (ILI) and/or acute respiratory infection (ARI) compared to the previous week. A total of 143 specimens tested positive for influenza in week 47, of which 54% were for influenza A viruses. Of the 41 influenza A viruses for which subtype information was available, 68% were A(H3) and 32% were A(H1N1)pdm09. Since week 40, 637 specimens of influenza viruses have been typed: 61% were influenza A and 39% were influenza B. Among the 237 influenza A specimens for which subtype information was available: 59% were A(H3) and 41% were A(H1N1)pdm09.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No cases of human avian influenza A/H5N1 infection have been reported by the WHO since August 10, 2012.
WHO Avian influenza situation updates

Human Swine Influenza
One infection with an influenza A (H3N2) variant virus (H3N2v) was reported to the US CDC during week 47 from Iowa. No contact with swine or other livestock in the week preceding illness was reported, however the investigation is ongoing.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.